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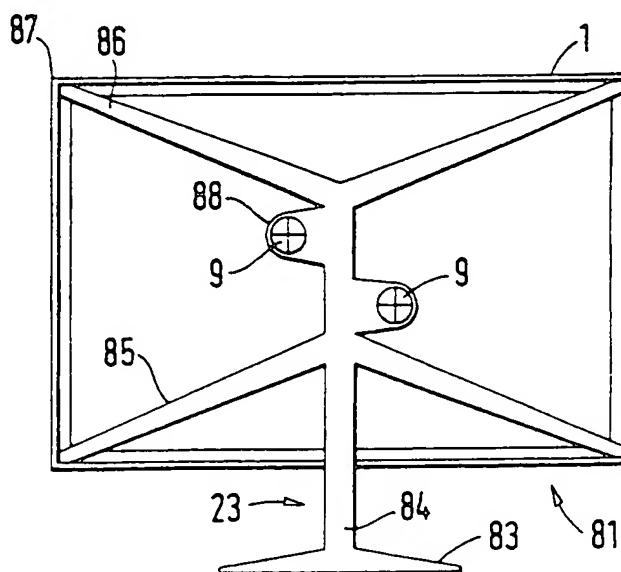
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(71) Applicant (for all designated States except US): VERITY GROUP PLC [GB/GB]; Stonehill, Huntingdon, Cambridgeshire PE18 6ED (GB).		Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	
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(54) Title: LOUDSPEAKERS COMPRISING PANEL-FORM ACOUSTIC RADIATING ELEMENTS

(57) Abstract

A panel-form loudspeaker (81) comprising a resonant distributed mode acoustic radiator having a periphery, a transducer (9) mounted to the radiator to excite distributed mode resonance in the radiator, and a frame (1) supporting the radiator, the transducer being coupled between the radiator and the frame to vibrate the panel to cause it to resonate to produce an acoustic output, characterised in that frame supports the radiator round its periphery and by resilient suspension means coupled between the frame and the radiator periphery.



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International Application No
PCT/GB 96/02158

A. CLASSIFICATION OF SUBJECT MATTER IPC 6 H04R1/02 H04R1/20 H04R7/06 H04R7/20		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 6 H04R		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 247 925 A (WARNAKA) 26 April 1966 see column 2, line 55 - column 3, line 38; figures	1,2,11

A	GB 2 010 637 A (SONY CORP) 27 June 1979 see page 2, line 77 - page 3, line 78; figures	1-4,11

A	WO 92 03024 A (SECR DEFENCE BRIT) 20 February 1992 see page 5, line 4 - page 6, line 5; figures	1
A	& GB 2 262 861 A (SECR DEFENSE) 30 June 1993 cited in the application	1

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Date of the actual completion of the international search <div style="text-align: center; font-size: 1.2em;">14 March 1997</div>		Date of mailing of the international search report <div style="text-align: center; font-size: 1.2em;">10.04.97</div>
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl. Fax (+31-70) 340-3016		Authorized officer <div style="text-align: center; font-size: 1.2em;">Gastaldi, G</div>

INTERNATIONAL SEARCH REPORT

Internat'l Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 669 782 A (KENWOOD CORP) 30 August 1995 see column 6, line 4 - column 9, line 15; figures ---	1,6-9
A	US 4 751 419 A (TAKAHATA) 14 June 1988 see column 4, line 32 - column 6, line 35; figures -----	1,10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 96/02158

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3247925 A	26-04-66	GB 1013643 A	
GB 2010637 A	27-06-79	AT 362000 B	10-04-81
		CA 1102444 A	02-06-81
		DE 2850786 A	18-10-79
		FR 2410410 A	22-06-79
		NL 7811631 A,B,	29-05-79
		US 4198550 A	15-04-80
WO 9203024 A	20-02-92	GB 2246684 A	05-02-92
		AT 117155 T	15-01-95
		DE 69106712 D	23-02-95
		DE 69106712 T	08-06-95
		EP 0541646 A	19-05-93
		GB 2262861 A,B	30-06-93
		JP 5509211 T	16-12-93
EP 0669782 A	30-08-95	JP 7240985 A	12-09-95
		DE 669782 T	29-02-96
US 4751419 A	14-06-88	NONE	